

barnes

DATA SHEET

MGR Series Sockets

For Transistors and TO Case Integrated Circuits

BULLETIN NO. 178A DECEMBER 1, 1965

SPECIFICATIONS

BODY MATERIAL: Teflon *TFE

CONTACTS: Beryllium copper heat-treated to full spring temper gold over nickel plated; wiping type.

OPERATING TEMPERATURE: Designed for continuous operation at temperatures of -65° to 200° C.

TERMINALS: Ribbon contacts on expanded circle 0.006 x 0.035 for dip solder to printed circuit board.

WIRE ACCEPTED: 0.015 to 0.025 diameter, 5/32 minimum length.

CONTACT RESISTANCE: Less than 0.010 ohms.

MOUNTING: Dip solder to printed circuit board, provide #2 screw (ST) in center hole if for repeated insertions on multi-lead types.

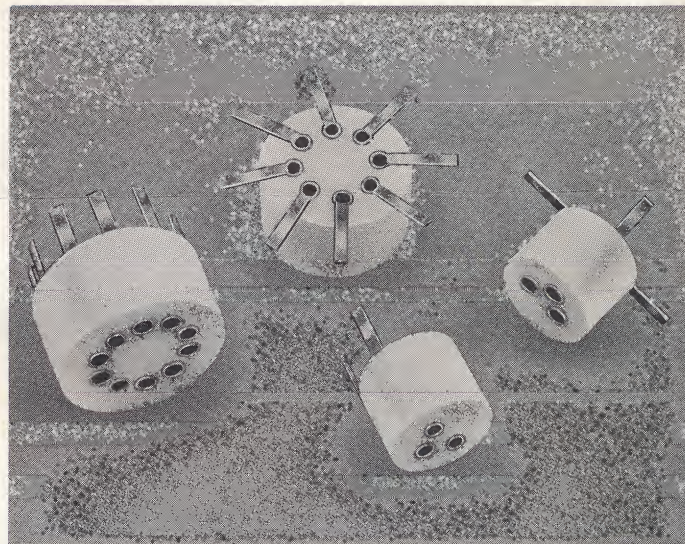
INSERTION FORCE: Approximately one ounce per lead depending on the wire diameter, typical 50 grams contact force on lead.

POLARIZATION NOTCH: Provided on all bodies, visible from both top and bottom of socket.

ENVIRONMENTAL: Contact is reliably maintained under rigorous vibration and environmental cycling.

MOUNTING PADS: Series RA mounting pads available for all MGR types.

*DuPont



Quik/Sert™

MGR SERIES SOCKETS

For Transistors and TO Case Integrated Circuits

- Extra compact
- Exceptionally low profile of 0.215"
- Dip solderable
- Easy insertion
- High reliability
- Long Life
- Teflon body
- Won't damage device

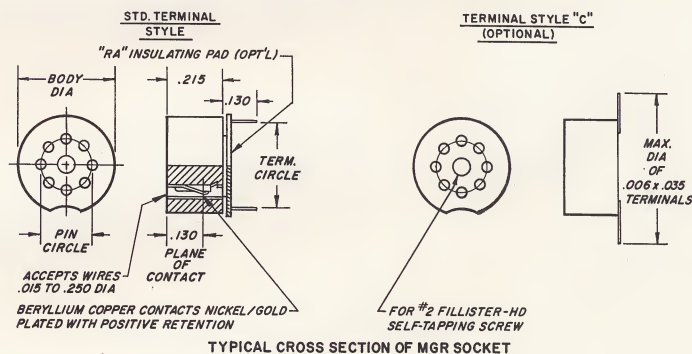
New Teflon* sockets that are virtually universal in their possible application, designed for production mounting, breadboarding, and testing applications. They are available for use with low-power transistors, such as TO-5, TO-18, TO-47, and integrated circuits in multi-lead TO cases - in 3, 4, 6, 8, 10, 12, and 14 leads.

The new MGR series is designed for dip-soldering to printed circuit boards, has an exceptionally low profile above board, and features an expanded terminal circle making possible many circuits on single-sided boards, rather than multi-layer. The MGR series has the quick, easy insertion capabilities typical of the Quik/Sert line. It will not damage device, yet provides positive device retention.

Terminal circle on the back of the socket is expanded 0.150". Contact resistance is low and it has an exceptionally long service life under all types of environmental conditions.

MGR PRINTED CIRCUIT BOARD SOCKETS

Part No.	No. of Pins	Pin Circle	Arrgmt.	Pin Spcg.	Base Pin	Body Dia.	Max. Dia. Terminals Style C
MGR-31	3	.100	3	90°	.250	9/32"	.510
MGR-32	3	.141	3	90°	.291	5/16"	.551
MGR-33	3	.200	3	90°	.350	3/8"	.610
MGR-41	4	.100	4	90°	.250	9/32"	.510
MGR-42	4	.141	4	90°	.291	5/16"	.551
MGR-43	4	.200	4	90°	.350	3/8"	.610
MGR-61	6	.200	6	60°	.350	3/8"	.610
MGR-62	6	.200	6A	45°	.350	3/8"	.610
MGR-63	6	.141	6	60°	.291	5/16"	.551
MGR-64	6	.141	6A	45°	.291	5/16"	.551
MGR-81	8	.200	8	45°	.350	3/8"	.610
MGR-82	8	.141	8	45°	.291	5/16"	.551
MGR-101	10	.200	10	36°	.350	3/8"	.610
MGR-102	10	.230	10	36°	.380	7/16"	.640
MGR-111	11	.200	10A+CTR	36°	.350	3/8"	.610
MGR-121	12	.230	12	30°	.380	7/16"	.640
MGR-141	14	.250	14	25.7°	.420	7/16"	.680



STANDARD PIN ARRANGEMENT

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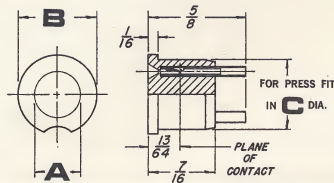
DATA SHEET

BULLETIN NO. 139

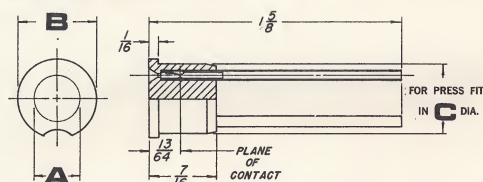
TEFLON TEST SOCKETS FOR MULTIPLE LEAD TO-5 DEVICES

BARNES SERIES MA-05, MA-06, MA-07,
MA-08, MS-12, and MS-47

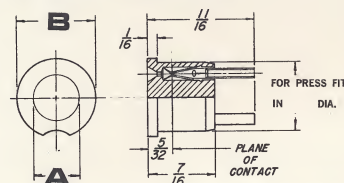
MA-07 Series



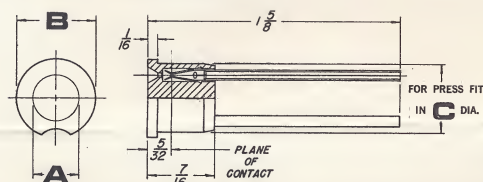
MA-08 Series



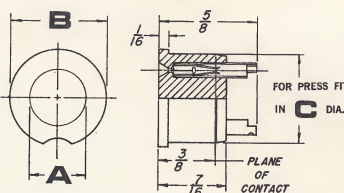
MA-06 Series



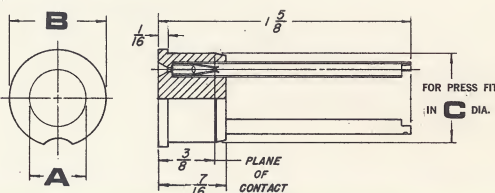
MA-05 Series



MS-47 Series



MS-12 Series



All these sockets feature beryllium copper contacts with nickel/gold plating, and chamfered lead entrances. The various series are suited to all types of test and breadboard applications and all types are available with either short or long lead guide tubes and terminals. Various sizes of pin circles and constructions are used in the different series, providing a good compromise between ease of insertion and permissible lead deformation.

The MA-07 and MA-08 series are of the same basic construction. The MA-07 has short terminals and the MA-08 has long lead guide tubes. These sockets feature exact fit pin circles, requires no lead deformation. Chamfered entrance is smaller than on other styles. For 1/4" and longer leads.

The MA-05 and MA-06 are of the same construction with long and short terminals. This type is primarily recommended for 1/2" lead devices, the plane of contact is close to the top of the socket. Roll in device easily with slight lead spread.

The MS-12 and MS-47 types have widely expanded pin circles, and are specially recommended for 1-1/2" leads. Large circle and deep contacts ease insertion.

All styles are available in 6, 8, 10, or 12 lead types in both long and short terminal lengths. See details in chart and outline drawings of typical constructions.

SPECIFICATIONS

BODY MATERIAL: Teflon* TFE, white, precision machined
CONTACTS: Full spring temper beryllium copper, wiping type contacts, plated nickel and hard gold. Welded or crimped to terminal tube.

GUIDE TUBE AND TERMINALS: Brass, plated nickel and hard gold.

CONTACT RESISTANCE: Less than .010 ohms typical.

OPERATING TEMPERATURE: -65°C to 200°C

LIFE: Typical life 50,000 to 100,000 insertions.

MOUNTING: Compression fit in round hole or use mounting saddle. #MS-102 & #MS-103 mounting saddles fit parts with 7/16" press fit dimension.

INSERTION FORCE: 1 to 1-1/2 ounces, depending on type of socket and diameter of lead.

LEADS ACCEPTED: .015 to .025 diameter. For minimum length accepted, see plane of contact dimension on outline drawings.

POLARIZATION NOTCH: Visible from front of socket and from rear, provided on all models.

VIBRATION: Sockets withstand vibration and all types of environmental cycling.

PIN ARRANGEMENTS



6B



6A



8A



10A



12A

PART NUMBERS & DETAIL DIMENSIONS

PART #	ARGT	DIM A	DIM B	DIM C	PART #	ARGT	DIM A	DIM B	DIM C
MS-12-8	8A	.400	5/8	9/16	MA-05-6	6B	.210	1/2	7/16
MS-47-8	8A	.400	5/8	9/16	MA-05-6A	6A	.260	1/2	7/16
MA-05-10	10A	.330	1/2	7/16	MA-06-6	6B	.210	1/2	7/16
MA-06-10	10A	.330	1/2	7/16	MA-06-6A	6A	.260	1/2	7/16
MA-07-10	10A	.250	1/2	7/16	MA-07-6	6B	.200	1/2	7/16
MA-08-10	10A	.250	1/2	7/16	MA-07-6A	6A	.200	1/2	7/16
MS-12-10	10A	.420	5/8	9/16	MA-07-6B	6B	.141	1/2	7/16
MS-47-10	10A	.420	5/8	9/16	MS-12-6	6B	.312	5/8	9/16
MA-05-12	12A	.400	5/8	9/16	MS-12-6A	6A	.400	5/8	9/16
MA-06-12	12A	.400	5/8	9/16	MS-12-6B	6B	.470	3/4	11/16
MA-07-12	12A	.300	1/2	7/16	MA-08-6	6B	.200	1/2	7/16
MA-08-12	12A	.300	1/2	7/16	MA-08-6A	6A	.200	1/2	7/16
MS-12-12	12A	.510	3/4	11/16	MA-08-6B	6B	.141	1/2	7/16
MS-47-12	12A	.510	3/4	11/16	MA-05-8	8A	.260	1/2	7/16
MA-06-14	14	.450	5/8	9/16	MA-06-8	8A	.260	1/2	7/16
MS-47-6	6B	.312	5/8	9/16	MA-07-8	8A	.200	1/2	7/16
MS-47-6A	6A	.400	5/8	9/16	MA-08-8	8A	.200	1/2	7/16

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DATA SHEET

MF SERIES SOCKETS

FOR MULTI-LEAD "TO" PACKAGES

BULLETIN 134A DECEMBER 1, 1965

Large pyramidal entrances permit the easiest possible insertion of any multi-lead device . . . provides exact pin fit for no lead deformation and it has the capability to accept $\frac{1}{2}$ " to $1\frac{1}{2}$ " leads. Also available for shorter 0.3" leads.

Contacts give low, uniform resistance and will not scrape the leads of the device. MF series sockets are available in several styles for chassis mounting, for printed circuit mounting, and as carrier sockets with a mating base connector. All styles are available in 6, 8, 10, 12 and 14 lead arrangements.

A polarization mark is provided on all sockets and permits easy insertion with the large entrances. A reliable contact will be maintained despite severe environmental conditions.

Gang fixtures and aging boards can be supplied to meet your specifications.

Designed For: Production, test and breadboard applications.

Features: Extra large opening makes the fastest, simplest insertion possible. Cuts production time.

SPECIFICATIONS

BODY MATERIAL: Glass filled nylon (code N) or Fluorocarbon, Teflon (code T) are standard. Polypropylene optional.

TERMINALS: MF-02—straight barrel type; MF-02-H—barrel type with soldering hole; MF-03—.037" dia. offset wire terminals; on 14 lead .007 x .025 ribbon leads; MF-04—chamfered end leads to fit RD-62; MF-04 Sockets positively polarized in RD-62 Mating connector; MF—02X2 and 03X2—for 0.3" leads, chassis (MF-02 X2) and P.C. (MF-03X2) mounting.

WIRE SIZES ACCEPTED: 0.015" to 0.025" diameter. Minimum lead length 0.3" or $\frac{3}{8}$ ".

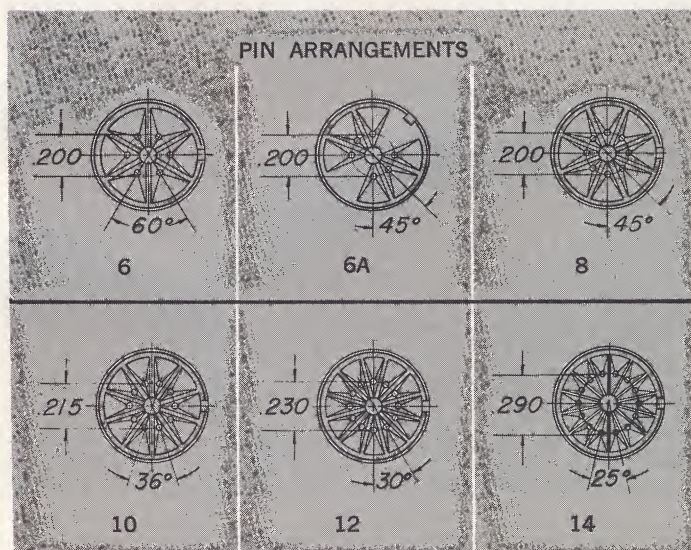
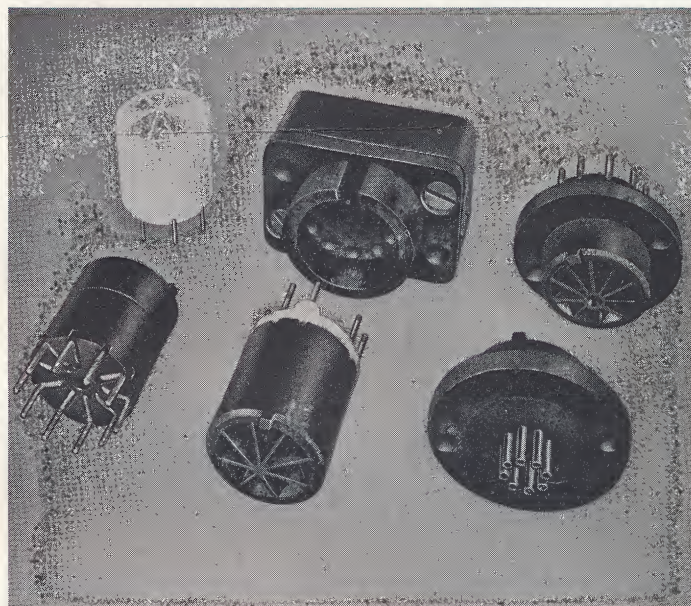
CONTACT RESISTANCE: Less than 0.010 ohms typical.

OPERATING TEMPERATURE: 150°C. maximum for nylon; 200°C for Fluorocarbon.

DIELECTRIC BREAKDOWN: Greater than 1500 v.

LIFE: 50,000 insertions under typical conditions.

INSERTION FORCE: $\frac{3}{4}$ to 1 ounce per lead with 0.018 diameter wire. Smooth wiping surface will not scrape leads.



Quik/Sert ^{T.M.} SOCKETS

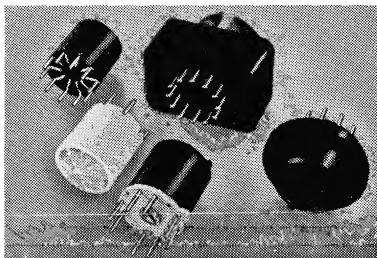
...from Barnes...The World's Largest Line of Sockets, Carriers and Contactors
For Semiconductor Devices and other Electronic Components.

Choose from several thousand sizes, configurations, styles, materials...for all testing, breadboarding and production applications...designed for fast, simple mounting, device insertion and high contact reliability. Protect delicate components from costly damage and speed handling time.

UPGRADE RELIABILITY, SAVE MONEY THROUGH FREE SPEC ANALYSIS

Send the specifications on your socket requirements to Barnes' technical staff. We will correlate your specifications with the specific applicable Barnes models...and if needed can supply you with detailed recommendations on custom sockets best suited for your needs, whether large or small quantities.

Quik/Sert SERIES MF SOCKETS FOR TRANSISTORS AND I.C.'s IN TO PACKAGES

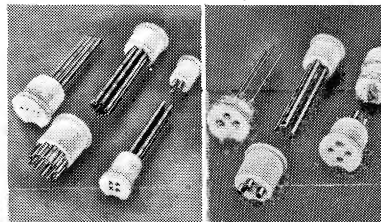


Increase Production Testing Rates Up To Five Times

Large pyramidal entrances permit simple, fast insertion of any multi-lead device. No lead scraping, deformation or spreading. Withstands extreme environmental cycling. Designed for test and breadboard applications.

- **CONTACTS:** Resistance less than 0.01 ohms typical. Beryllium copper, wiping type, plated nickel/gold spring temper. Accepts 0.015 to 0.025" wire sizes; 0.3" to 1 1/2" lead length.
- **STYLES AVAILABLE:** Chassis mounting; p.c. mounting; as carrier sockets using RD-62 mating base; 6, 8, 10, 12 and 14 lead arrangements. Gang fixtures, aging boards to your specs.
- **BODY MATERIAL:** Glass filled nylon or Teflon FEP standard. Operating temp.: 150°C. max. nylon; 200°C. Teflon; 175°C. CTFE.
- **TERMINALS:** Straight barrel type with/without soldering hole on chassis mounting models. Offset leads 0.037" on p.c. models: Bevel end pins on carrier types.

Quik/Sert SERIES MA/MS TEFLON SOCKETS FOR TRANSISTORS, I.C.'s MINIATURE COMPONENTS

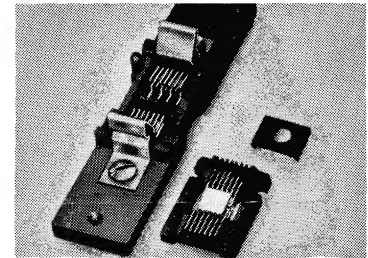


A Wide Variety For All Types of Rigorous Test Applications

The largest single line of high quality, long life sockets for TO's, almost any transistor, multi-lead packages and other miniature components. For wide variety of lead sizes, lengths and configurations. Also in-line, high frequency, aging rack, p.c., and power transistor sockets. For long or short leads. Extreme low capacitance/loss factor. Easy-insertion pyramid or chamfered entrances.

- **CONTACTS:** Spring temper beryllium copper, wiping type, plated nickel/gold. Terminal brass Ni/Au plated. Accepts leads 0.015 to 0.032" dia. Contact resistance less than 0.01 ohms typical.
- **BODY MATERIAL:** Teflon TFE. For operation -65°C. to 200°C. Polarization notch on all models.
- **LONG LIFE:** Up to 100,000 insertions typical.
- **MOUNTING:** Compression fit in round hole or with mounting saddle.
- **VIBRATION:** Withstand all types of environmental cycling.

Quik/Sert SERIES 029 FLAT-PACK PROTECTIVE CARRIERS AND CONTACTORS



Carrier Doubles As Disposable Shipping Container

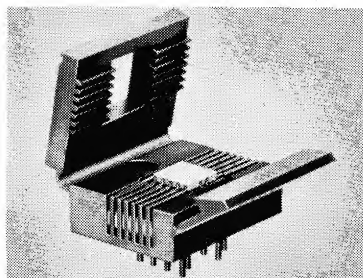
The 029 series carriers fit any standard size I.C. flat-package, provide fast device loading and insertion into test block. After testing, carriers double as disposable shipping containers for devices.

Less than 10¢ in large quantities. Carrier has fast, simple, positive loading. Device is locked in place by snap-in-clip; holds it by leads with no lock force on body.

Carriers inserted or removed from contact block with simple push-pull, one-hand action. Held firmly by stainless steel springs. Uniform wiping contacts in block. Will not mar leads. Blocks available to match most other carrier sizes and shapes.

- **CONTACTS:** Wiping type spring temper beryllium copper, Nickel/Gold plated. Resistance less than 0.012 ohms.
- **BODY MATERIAL:** Glass filled nylon standard. Operating temperature 150°C. max. Other materials available.
- **CONTACTOR LIFE:** 50,000 insertions worst case.

Quik/Sert SERIES MD "FLIP-TOP" SOCKETS FOR FLAT-PACKS



The Easiest
Loading and
Testing For All I.C.
Flat Packages

For all standard configurations and sizes of I.C. flat-packs. Simple, fast loading; snap open, insert device, close and latch socket. Forces on leads uniformly distributed. No force on body/lead junction. Can't damage leads. Barriers between leads give positive separation.

MD-50 series provides reliability, compactness and economy ($\frac{1}{3}$ price of previous models). Can be used as carrier socket; (using RD-86 mating base connector). Sockets can also be hand wired, dip soldered or wire wrapped.

- **CONTACTS:** Wiping type, spring temper. Nickel/gold plated. Resistance less than 0.01 ohms.

- **BODY:** MD-50 filled polypropylene for operation to 125°C. MD-70—175°C. dielectric and stainless steel hinge and latch parts.

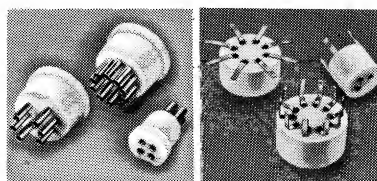
- **PACKAGES ACCEPTED:** MD-51— $\frac{1}{8}$ " x $\frac{1}{4}$ " package; MD-55

$\frac{1}{4}$ " x $\frac{1}{4}$ " & $\frac{1}{4}$ " x $\frac{3}{8}$ " packages. All accept up to 14 lead devices. Flat leads to 0.025" wide accepted.

- **LIFE:** To 50,000 uses, MD-50 rated 5,000 hours at 125°C; MD-70, 175°C.

MDP SERIES: Sockets available mounted on standard 15 pin p.c. board.

Quik/Sert SERIES MG/MGR TEFLON SOCKETS FOR TRANSISTORS, I.C.'s IN TO PACKAGES



Production
Flexibility,
Compact Size,
Combined With
Test Reliability

Compact size; ease of insertion; rapid mounting; high reliability for every production and breadboard test applications, including aging and test racks. Withstands environmental conditions.

MG series: Simple, positive mounting by compression fit in round hole. Uniform, low contact resistance/positive contact retention. In wide variety of standard pin arrangements. Many special configs. for all small wire lead components.

MGR series: (1) Low profile above board of 0.215". (2) Terminal circle expanded 0.15" giving good p.c. land allowing many circuits on single sided boards.

- **CONTACTS:** Beryllium copper, wiping type, spring temper, plated nickel/gold. Resistance less than 0.01 ohms.

- **BODY:** Teflon TFE, for operation —65°C. to 200°C.

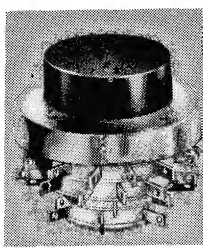
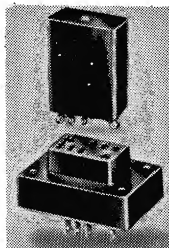
- **TERMINALS:** Straight barrel type, available with/without soldering holes, MG types.

- **WIRES ACCEPTED:** 0.015" to 0.025" dia. $\frac{1}{2}$ " min. length.

- **MOUNTING:** MG types, compression fit in round hole, or with mounting saddle. MGR dip solder to p.c. board.

- **LIFE:** 50,000 insertions typical.

Quik/Sert RELAY TEST SOCKETS



For Plug-In
Testing of Relays
and Other Solder
Terminal
Components

Specially designed floating contacts, headers cannot be inserted improperly. Prevents damage to contacts or components.

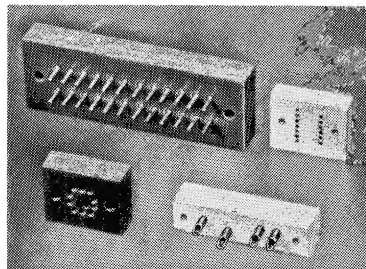
LONG LIFE: Rated 200,000+ insertions.

VARIETY: Over 300 standard types and configurations. For round and crystal can relays and virtually all other components. Available in bodies of Teflon FEP, Polycarbonate, Vinyl and Filled epoxy. With choice of single or dual, mutually insulated contacts. Dual contacts provide separate voltage and current terminals for contact resistance measurements.

RELIABILITY: Floating design of contacts allow for minor irregularities, contacts are beryllium copper; nickel/gold plated. Contact resistance less than 0.005 ohms.

TERMINALS ACCEPTED: Hook, cane, straight pin, turret, flattened/pierced, etc.

Quik/Sert MODULE TEST CONNECTORS



SERIES RD/MGX

For Any Standard
Or Special
Module Pin
Arrangements

RD and MGX connectors save substantial time in testing and connecting printed/welded circuit modules; thin film or hybrid components.

High reliability with typical life rated 100,000 insertions.

Special configurations, sizes and styles can be produced in any quantity. Wide variety of standard types using grid arrangements of 0.05" grid spacing.

- **BODY MATERIAL:** Phenolic or Teflon for —65°C. to 200°C. range.

- **CONTACTS:** Beryllium copper, wiping type nickel/gold plated.

- **CONTACT RESISTANCE:** Less than 0.01 ohms.

- **LEADS ACCEPTED:** Min. length 0.08" with wire dia. from 0.015" to 0.04".

barnes

DEVELOPMENT CO.

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R. A. Banks Sales Corp., 415-941-0900

CALIFORNIA—Los Angeles
Dyna Sales Co., 213-268-1175

COLORADO—Denver
The Palmer Co., 303-922-1766

CONNECTICUT—W. Hartford
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K. O. Brown & Co., 214-247-9736

WASHINGTON—Seattle
James J. Backer Co., 206-283-6470

April 28, 1966

☐ Change my address as noted

Mr. T. Nelson, Consultant
Box 1546
Poughkeepsie, New York 12603

Dear Mr. Nelson:

SEND ME INFORMATION
ON THE FOLLOWING:

☐ Transistor Sockets

☐ Integrated Circuit Sockets

☐ Power Transistor Sockets

☐ Relay Test Sockets

☐ Flat Package Carriers & Sockets

☐ Board and Test Jacks

☐ Component & Header Sockets

☐ Module Test Connectors

☐ (Others) _____

☐ Put me on your mailing list for above products

☐ Have sales representative call me

NAME _____ TITLE _____

COMPANY _____

DEPT _____ MAIL STOP _____

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CITY _____ STATE _____ ZONE _____

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